


# Ship Stability for Masters and Mates

*By Bryan Barrass, D R, Capt Derrett*

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**Ship Stability for Masters and Mates** By Bryan Barrass, D R, Capt Derrett

Ship Stability for Masters and Mates explores all aspects of ship stability and ship strength, squat, and interaction and trim, as well as materials stresses and forces. Organized into 56 chapters, the book looks at the relationship between ship stability and ship motion, with emphasis on group weights in a ship. It also explains how TPCs are calculated for a range of drafts extending beyond the light and loaded drafts, along with form coefficients, including the coefficient of fineness of the waterplane area.
The book explains how to perform KB, BM, and KM calculations and make graphics on metacentric diagrams. It considers large-angle stability, the effect of beam and freeboard on stability, and hydrostatic curves and values for vessels that are initially on even keel. The reader is also introduced to free-surface effects of slack tanks with divisional bulkheads, how side winds affect ship stability, and the correlation between freeboard and stability curves. Other chapters focus on timber ship freeboard marks, procedures and calculations for drydocking and stability, and ship squat in open water and in confined channels. The book also includes extracts from the 1998 Merchant Shipping (Load Line) Regulations Number MSN 1752(M).
This book is intended for students seeking to obtain Transport Certificates of Competency for Deck Officers and Engineering Officers and STCW equivalent International qualifications, as well as Chief Mates and Officers on Watch (Officers in Charge) on board merchant ships and other maritime personnel, port authorities, marine consultants, nautical study lecturers, and marine superintendents.

- Updated throughout to include new shipping industry developments and regulations, with 9 new chapters, the latest ship stability datasheets, and sample exam questions
- Provides a comprehensive introduction to all aspects of ship stability and ship strength, squat, interaction and trim, materials stresses and forces
- Concepts are supported with numerous worked examples, clear diagrams, graphs and equations to assist with understanding and application of this critical subject

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**Ship Stability for Masters and Mates By Bryan Barrass, D R, Capt Derrett Bibliography**

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## Editorial Review

Review

*"British specialists in marine technology (Barrass) and navigation (Derrett) provide a resource for students studying for their Transport Certificates of Competency for Deck Officers and Engineering Officers and STCW equivalent international qualification. Primarily for chief mates and officers on watch on board merchant ships, it focuses on linking ship stability with ship motions."--**Reference & Research Book News,** **October 2013** "…the book provides a comprehensive treatment of the subject with full supporting data. It is well written with clear illustrations. It can be thoroughly recommended to those at whom it is aimed and many others associated with the operation of ships will benefit from reading it."--**The Naval Architect,** **January 2013***

From the Back Cover

Ship stability for Masters and Mates, now in its seventh edition provides a comprehensive introduction to all aspects of ship stability with numerous worked examples to assist masters, mates and engineering officers with qualifications and professional practice. New coverage includes content on new materials used in ship construction, developing methods of propulsion and the latest research into resistance.

Unique features include:

- 30% new content including chapters on new materials used in ship design, methods of propulsion, and the latest research into resistance
- Comprehensive introduction to all aspects of ship stability and ship strength, squat, interaction and trim, materials stresses and forces
- Numerous worked examples and clear diagrams to assist understanding of this critical subject

Ship Stability for Masters and Mates is required reading for seafarers and students alike and an important resource for naval architecture students, shipboard officers and shore-based staff, including dry-dock personnel, ship-designers, ship surveyors, port authorities, marine consultants and superintendents.

Dowloadable spreadsheets to accompany the book can be found at
http://booksite.elsevier.com/9780080970936/

About the Author
Dr Bryan Barrass worked as a Ship Draughtsman for 11 years at Swan Hunters Shipyard in Wallsend. In 1963, he then became a Lecturer in Naval Architecture in Sunderland. From 1967 to 1993, he worked at Liverpool John Moores University, lecturing to Maritime Degree students, Masters, Mates, and Marine Engineers.

In 1993 he retired from full-time work. He became a visiting Lecturer and has written seven books involving Ship Stability, Ship Design & Ship Performance and Ship Squat & Interaction. His interest in Ship Squat began in April 1972, starting on research for his Ph.D. degree.

He has worked with many national & international Port Authorities. They include the PLA, Milford Haven PA, Liverpool PA, Humberside PA, Tyne PA, Truro PA, Newhaven PA, Bordeaux PA, Klaipeda PA, Nantes PA and Hamburg PA.

Dr Barrass has supplied Ship Squat and Interaction information to 22 countries worldwide. He has lectured at a great number of UK Universities and has advised many Ship-owners on the above listed Specialist topics.

## Users Review

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**Linnie Martinez:**

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